

## REVIEW.

Herbage Publication Series. Imperial Bureau of Pasture and Forage Crops. Aberystwyth. 1940.

- (a) The Control of Weeds. Bull. 27. pp. 168. 7s. 6d.
- (b) Grassland Investigations in Australia. Bull. 29. pp. 107. 5s. 6d.
- (c) Technique of Grassland Experimentation in Scandinavia and Finland. Bull. 28. pp. 50. 2s. 6d.
- (d) The Breeding of Herbage Plants in Scandinavia and Finland. Joint Publ. No. 3 with Imp. Bureau of Pl. Breeding & Genetics. pp. 124. 4s. 6d.

The publication of these bulletins is evidence of the realisation of the vital importance and essential nature of grassland and forage crops for human needs, and for the need for co-operation in agricultural methods and progress throughout the world.

The days when animals could be sent to graze on natural vegetation with no other action taken are ended in all cases where any degree of permanence of land utilisation or quality of product are aimed at.

The provision of information in the form of these publications on the procedure and results from all over the world must be of very great value to agriculturalists and all others interested in the land. Though some of the problems dealt with may appear specialised and possibly local in character, the general principles involved in any of them are of importance to all.

- (a) Of most direct and general interest to South Africans is Bulletin 27 dealing with weed control.

Losses in agriculture due to weed growth amount in the aggregate to vast sums annually. This loss is not only large but in some cases is a steadily increasing one, even getting to the point of land being rendered useless. There is a tendency to look upon weeds as comprising the plants of short duration that are generally characteristic of arable land or the relatively small plants of grassland and turf. But weeds also include a number of perennial species some of which are of large size; examples are the prickly pear, and of lesser importance, *Hakea*, or *rhenosterbos*.

The problem of weed control is a complex one and many methods have been employed in the attack upon it. These methods may be grouped under three general heads: (1) Cultural methods, which include hoeing and cutting, seed cleaning, the use of fertilisers to encourage the crop not the weed, and others; (2) chemical methods, which aim essentially at poisoning or reducing the vigour of the weed but not the crop; and (3) biological methods, which are based on the reduction or elimination of weeds by the activities of other plants, of insects, or other agents. Well-known examples of biological control are the action of *Cactoblastis* on the prickly pear, and of the Cinnabar moth on ragwort.

This bulletin is called a symposium. It contains articles from Canada (2), U.S.A. (3), Germany, Australia (2), New Zealand (2), and South Africa,

The contributions cover a wide range of aspects of the subject and are written from varied points of view. A Canadian contribution deals with some of the fundamental problems of competition between weeds and crop plants, their root systems, and capacities for germination. The articles from America, Germany, Australia and New Zealand deal more directly with the practical problem. It is interesting to note that the American writers favour chemical means of control, whereas in Germany cultural methods, seed cleaning, and fertilisation, are more favoured. It should be mentioned that arable crops are especially dealt with in the latter case whereas the former deal more generally with all weeds. The problem of the control, clearing, and utilisation of land infested with prickly pear is the subject of an article from Australia and an account is given of this striking case of biological control. Biological control in New Zealand in reference to a number of species is dealt with in another contribution.

The South African article deals with a different aspect, namely poisonous plants. These, whether native or not, may be a serious trouble in grazing and must be looked upon as in the same category as weeds. This article deals with the plants and the symptoms they produce rather than with the eradication or control problem.

(b) The conditions affecting agriculture and pastoral activities in Australia are in so many features related to those in South Africa that any account of them must provide material of interest to this country. This bulletin gives outlines of the main lines of investigation that are being undertaken in the Commonwealth. After a general introduction, there are articles on the relations of environment to grassland, plant introductions, and breeding of pasture plants. The main part is taken up by accounts of the work being carried on arranged according to districts. A rather full bibliography relating to Australian pasture problems is appended.

The other two bulletins deal with some special problems in the northern countries of Europe, Sweden, Norway, Denmark, and Finland. Though conditions are in many ways very different from anything in this country, there is much information that can readily be applied with little change to local matters.

(c) This is an account of the methods used in experiments on grassland in these countries. Many are quite generally applicable to such problems. The methods have in most cases been made as accurate as possible and at the same time as simple as can be and not such as to require a great expenditure of time.

(d) This bulletin deals with the breeding of herbage plants; a field that has not been more than touched upon with the South African flora. The result of selection and of breeding experiments with a number of legumes, grasses and some other plants are given. There is also an account of cytological work in relation to pastoral breeding.

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